

FIG.1

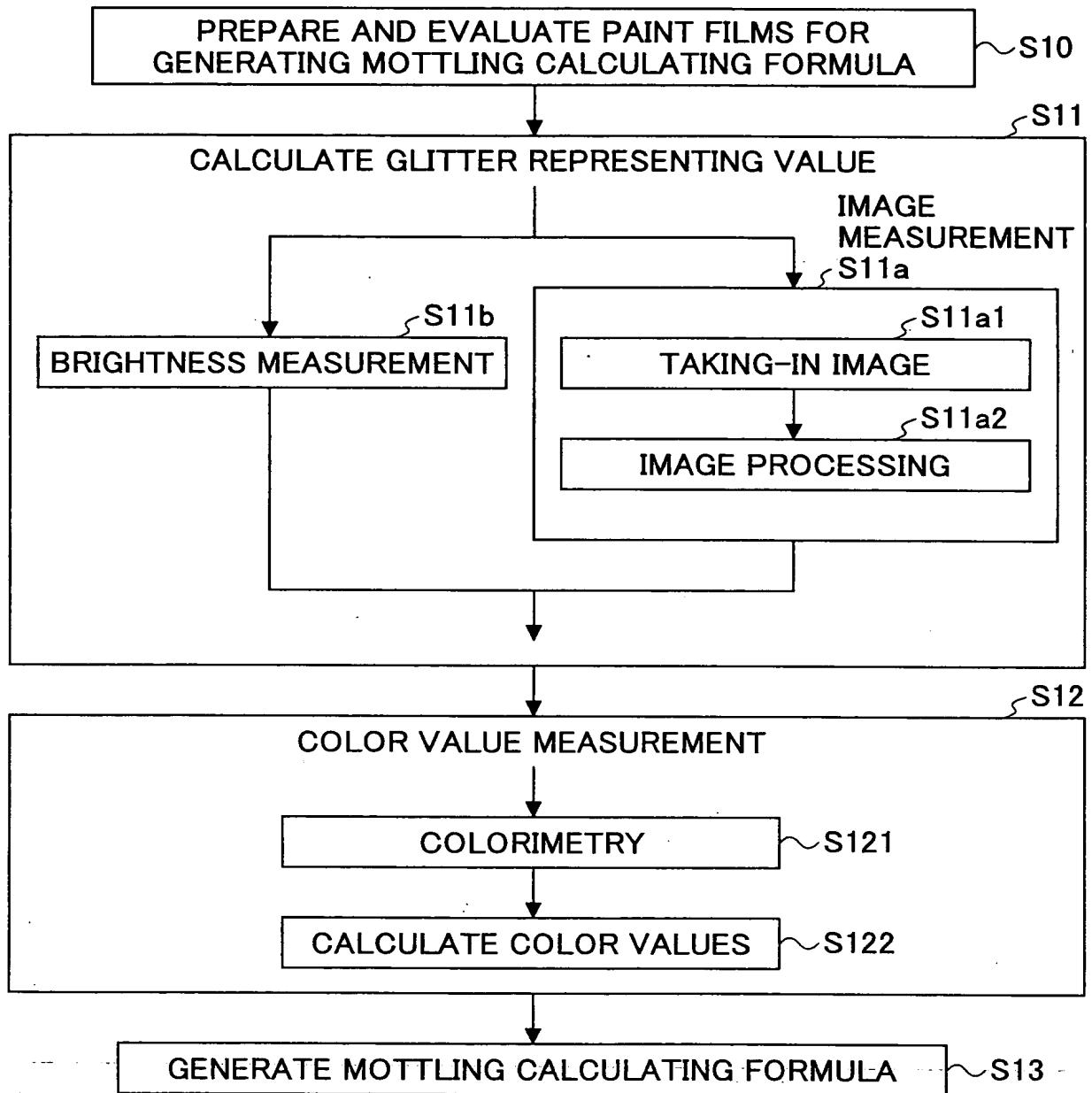


FIG.2

CALCULATION OF HUE ANGLE

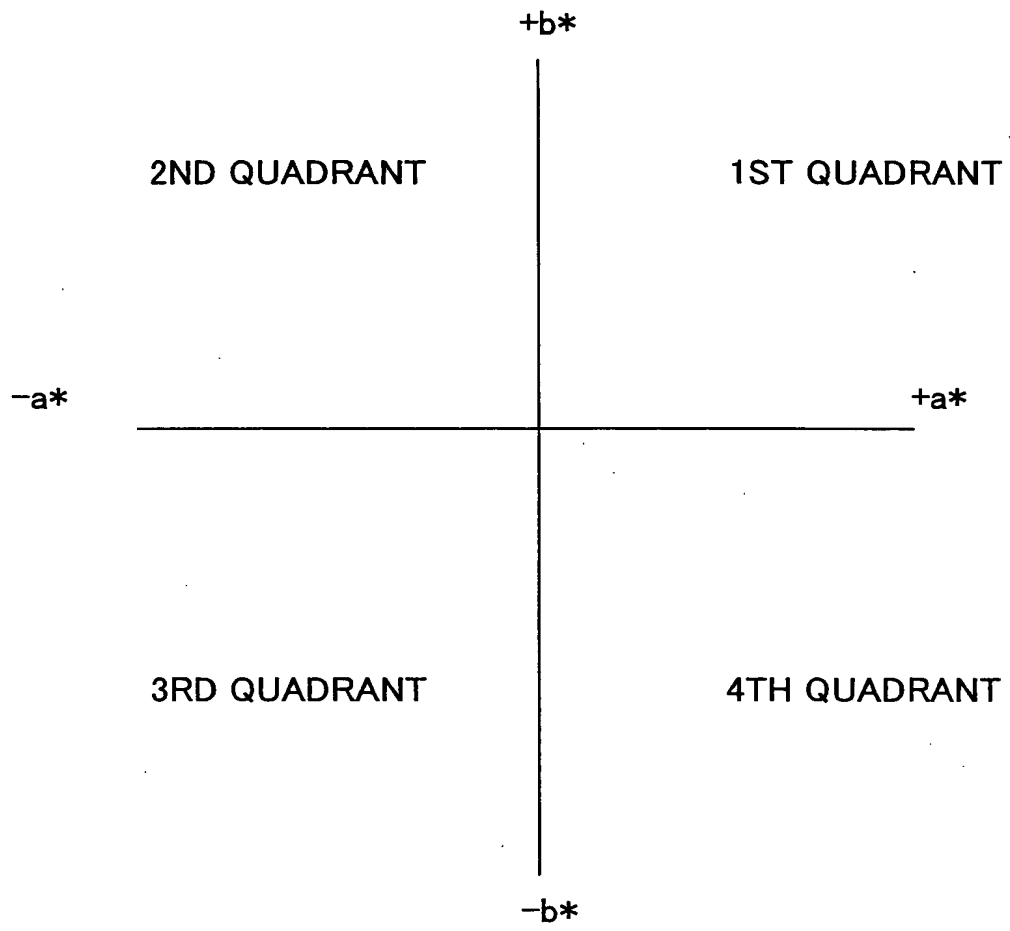


FIG.3

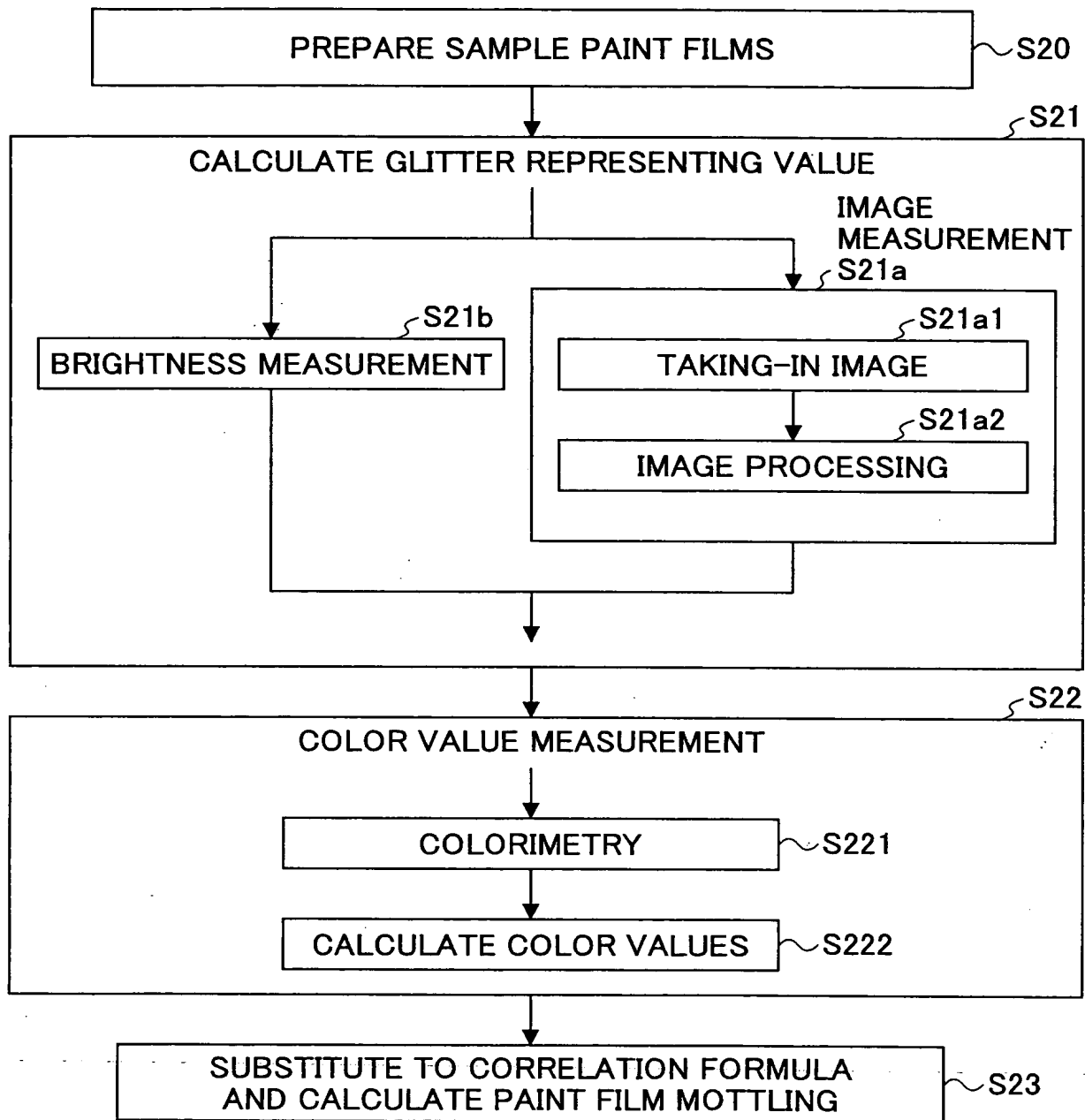


FIG.4

	AO20001	AO20002	AO20005	AO20007	AO20008	AO20009	AO20010
ALUMINUM FLAKE PIGMENT A			5.7				
ALUMINUM FLAKE PIGMENT B		3.2		17.0	17.0	14.3	14.3
ALUMINUM FLAKE PIGMENT C	5.5	7.7					
ALUMINUM FLAKE PIGMENT D			7.2				
ALUMINUM FLAKE PIGMENT E	5.5						
CARBON BLACK PIGMENT A	0.01	0.01		0.3	0.3	0.5	0.5
ORGANIC REDDISH PIGMENT A	0.02	0.02					
INORGANIC REDDISH PIGMENT A	0.3	0.3	1.4				
ORGANIC YELLOWISH PIGMENT A			0.05				
ORGANIC YELLOWISH PIGMENT B			0.6				
ORGANIC BLuish PIGMENT A				0.3	0.3	3.0	3.0
TOTAL PWC	11.33	11.23	14.95	17.6	17.6	17.8	17.8

FIG.5

PAINT PROCESS: BASE COATING TWICE WITH 90 SECOND INTERVALA

PAINTING MACHINE	ABB 1N1072F
PAINT DISCHARGE RATE	220 cc/min
SHAPING AIR	520 Nm ³ /min
ROTATION	25000 RPM
PAINTING MACHINE LINEAR SPEED	900 mm/min
DISTANCE TO PAINTING OBJECT	300 mm

MEASURED VALUE AND CALCULATED VALUE

PAINTED BOARD ID	GLITTER REPRESENTING VALUE		AO20023	AO20024	AO20025	AO20026	AO20027	AO20028	AO20029	AO20030	AO20031	AO20032	AO20033	AO20034	AO20035	AO20036	AO20037	AO20038	AO20039
	107	73	235	188	119	3	3	2.75	157	99	90	142	111	94	238	236	148	150	
X-Rite 68M2	MOTTLING	2.75	3.25	2	2.5	3	3	38.91	108.71	109.71	98.51	84.38	83.53	79.74	121.49	117.89	112.68	112.56	
	15° L*	111.71	95.09	126.29	93.00	41.07	38.91	108.71	109.71	98.51	84.38	83.53	79.74	121.49	117.89	112.68	112.56		
	15° a*	-4.71	-4.26	-8.25	-37.80	-27.88	-24.10	-5.56	-4.71	-4.62	-4.71	-28.46	-24.63	-23.40	-8.16	-7.78	-5.49	-5.33	
	15° b*	-2.33	-1.89	-2.98	-31.24	-20.42	-19.61	-2.25	-1.89	-1.67	-1.89	-23.25	-21.42	-21.32	-3.29	-2.88	-2.48	-2.19	
	25° L*	93.53	83.26	94.72	68.27	28.23	25.28	89.72	92.67	85.42	67.48	70.45	69.33	93.90	91.83	90.33	89.87		
	25° a*	-4.60	-4.19	-6.92	-29.99	-20.87	-17.97	-5.37	-4.53	-4.52	-25.25	-20.86	-23.05	-21.89	-7.06	-6.84	-5.29	-5.11	
	25° b*	-1.57	-1.41	-2.64	-25.39	-16.43	-15.82	-1.93	-1.32	-1.32	-1.75	-20.86	-20.25	-20.09	-2.58	-2.44	-1.77	-1.80	
	45° L*	61.51	60.62	45.93	31.63	10.56	9.65	58.01	60.82	59.51	40.70	47.32	48.55	49.29	49.19	49.19	54.36	55.08	
	45° a*	-3.45	-3.36	-3.72	-14.15	-7.96	-6.35	-3.81	-3.20	-3.50	-16.08	-16.08	-17.14	-16.88	-4.04	-4.04	-3.47	-3.47	
	45° b*	-1.94	-1.88	-2.93	-17.08	-10.89	-10.58	-2.04	-1.73	-1.90	-18.60	-18.60	-17.44	-17.56	-2.79	-2.74	-1.80	-2.00	
	75° L*	36.06	39.83	22.70	12.76	3.42	3.52	35.07	36.92	38.06	22.39	28.27	30.34	23.71	23.71	23.71	32.37	32.78	
	75° a*	-3.08	-3.20	-3.06	-5.18	0.19	0.27	-3.38	-2.93	-3.24	-9.57	-9.57	-11.62	-11.94	-3.37	-3.32	-3.14	-3.16	
	75° b*	-2.14	-1.97	-3.13	-12.86	-4.91	-5.18	-2.43	-2.07	-2.10	-13.50	-13.50	-14.87	-15.76	-3.26	-3.22	-2.38	-2.28	
	110° L*	26.50	29.14	16.08	7.21	2.09	2.14	26.18	27.41	28.57	14.70	19.26	21.49	17.26	16.57	16.57	24.40	24.39	
	110° a*	-3.45	-3.32	-3.50	-2.78	1.26	1.27	-3.68	-3.23	-3.46	-7.45	-7.45	-9.30	-9.92	-3.89	-3.61	-3.46	-3.46	
	110° b*	-2.39	-2.06	-3.12	-11.51	-2.94	-3.31	-2.29	-2.18	-2.09	-12.14	-12.14	-13.78	-14.81	-3.42	-3.32	-2.31	-2.36	
	15° C VALUE	5.25	4.66	8.77	49.04	34.56	31.07	6.00	4.91	5.08	36.75	36.75	32.64	31.66	8.80	8.30	6.02	5.76	
	25° C VALUE	4.66	4.42	7.41	39.29	26.56	23.94	5.71	4.72	4.85	32.75	32.75	30.68	29.71	7.52	7.26	5.58	5.42	
	45° C VALUE	3.958042	3.756594	4.735325	22.17992	13.48902	12.33932	4.32177	3.637705	3.982462	23.11117	24.45267	24.3575	4.909756	4.881516	3.909079	4.005109	4.005109	
	75° C VALUE	3.750467	3.757779	4.377271	13.86405	4.913875	5.187032	4.162848	3.58745	3.861036	16.54796	18.87171	19.77223	4.688763	4.825019	3.940051	3.898685	3.898685	
110° C VALUE	4.196975	3.907173	4.688752	11.84097	3.198625	3.545279	4.33434	3.898832	4.042239	14.24367	16.62463	17.82533	5.179624	4.904539	4.160252	4.186222	4.186222		
15° -100° C VALUE	1.06	0.75	4.08	37.20	31.36	27.52	1.66	1.02	1.03	22.51	16.02	13.83	3.62	3.39	1.86	1.57	1.57		
15° HUE ANGLE	206.32	203.93	199.86	219.57	216.22	219.14	202.03	199.87	201.86	21.925	221.01	222.34	201.96	200.31	204.31	202.34	202.34		
25° HUE ANGLE	198.84	198.60	200.88	220.25	218.21	221.36	199.77	198.25	201.16	219.56	221.30	222.54	200.07	199.63	198.60	199.40	199.40		
45° HUE ANGLE	209.35	208.57	218.23	230.36	233.84	239.03	208.17	208.40	208.50	225.91	225.50	226.13	214.63	214.15	207.42	209.96	209.96		
75° HUE ANGLE	94.62	93.87	101.01	150.72	156.94	157.55	95.30	94.32	94.20	132.56	127.67	126.25	100.70	101.00	95.57	95.34	95.34		
110° HUE ANGLE	214.71	211.82	221.71	256.42	293.20	290.99	211.89	214.02	211.13	238.46	235.98	236.19	221.32	222.60	213.73	214.30	214.30		
15° -100° HUE ANGLE	-8.39	-7.89	-21.85	-36.85	-76.96	-71.86	-9.86	-14.14	-9.27	-19.22	-14.97	-13.85	-19.36	-22.29	-9.42	-11.96	-11.96		
15° -100° L* VALUE	85.21	65.95	110.21	85.79	38.98	34.77	82.53	82.3	69.94	69.68	64.27	58.25	104.23	101.32	88.28	88.17	88.17		

FIG.7

QSAR ANALYSIS

	r^2 (CONTRIBUTION RATIO)	r (CORRELATION COEFFICIENT)	CORRELATION FORMULA
1	0.774	0.885	$3.35982+0.000474 \times X1^2+0.11361 \times (2.25-X1) \times X2^2+0.057642 \times X2^2-97 \times X2^2-0.064096 \times X2^2-90 \times X2^2-0.006376 \times (103.37-X3) \times X2^2+0.000767 \times (52.36-X4) \times X2^2$
2	0.774	0.885	$3.36022+0.000476 \times X1^2+0.000727 \times (53.49-X4) \times X2^2+0.113511 \times (2.25-X1) \times X2^2+0.057554 \times X2^2-97 \times X2^2-0.064014 \times X2^2-90 \times X2^2-0.006606 \times (103.37-X3) \times X2^2$
3	0.774	0.885	$3.2996+0.013184 \times X1-0.007534 \times (95.09-X3) \times X2^2+0.000785 \times (52.36-X4) \times X2^2+0.130979 \times (2.25-X1) \times X2^2-0.065116 \times X2^2-90 \times X2^2+0.058619 \times X2^2-97 \times X2^2$
4	0.773	0.885	$3.34463-0.00732 \times (95.09-X3) \times X2^2+0.0008 \times (52.36-X4) \times X2^2+0.08307 \times (2.54-X1) \times X2^2+0.000443 \times X1^2+0.077622 \times X2^2-95 \times X2^2-0.08417 \times X2^2-90 \times X2^2$
5	0.773	0.885	$3.30917+0.08094 \times X2^2-95 \times X3 \times X2^2+0.012971 \times X1-0.007545 \times (95.09-X3) \times X2^2+0.000773 \times (52.36-X4) \times X2^2+0.128525 \times (2.25-X1) \times X2^2-0.087593 \times X2^2-90 \times X2^2$
6	0.770	0.883	$3.34619-0.007719 \times (95.09-X3) \times X2^2+0.041874 \times X2^2-97 \times X2^2-0.048411 \times X2^2-88 \times X2^2+0.000448 \times X1^2+0.08304 \times (2.54-X1) \times X2^2+0.000771 \times (53.49-X4) \times X2^2$
7	0.770	0.883	$3.38101+0.000461 \times X1^2-0.053049 \times X2^2-88 \times X2^2-0.008198 \times (95.47-X3) \times X2^2+0.000655 \times (59.63-X3) \times X2^2-88 \times X2^2+0.139831 \times (2.05-X1) \times X2^2+0.04662 \times X2^2-97 \times X2^2$
8	0.770	0.883	$3.35299+0.000801 \times (52.36-X4) \times X2^2-0.007387 \times (95.09-X3) \times X2^2+0.042493 \times X2^2-97 \times X2^2-0.049023 \times X2^2-88 \times X2^2+0.000439 \times X1^2+0.11768 \times (2.25-X1) \times X2^2$
9	0.770	0.883	$3.35271+0.000705 \times (55.45-X4) \times X2^2-0.008205 \times (95.09-X3) \times X2^2+0.042084 \times X2^2-97 \times X2^2-0.048633 \times X2^2-88 \times X2^2+0.000441 \times X1^2+0.11394 \times (2.25-X1) \times X2^2$
10	0.774	0.885	$3.34303+0.000757 \times (53.49-X4) \times X2^2+0.117817 \times (2.25-X1) \times X2^2+0.058131 \times X2^2-97 \times X2^2-0.064606 \times X2^2-90 \times X2^2-0.007873 \times (95.09-X3) \times X2^2+0.013639 \times (X1^2-3.99) \times X2^2$

45° CHROMA SATURATION	X1
GLITTER REPRESENTING VALUE	X2
15° L*	X3
BRIGHTNESS FF	X4
HUE ANGLE FF	X5
CHROMA SATURATION FF	X6
45° HUE ANGLE	X7
VISUAL MOTTILING VALUE	y

FIG.8

